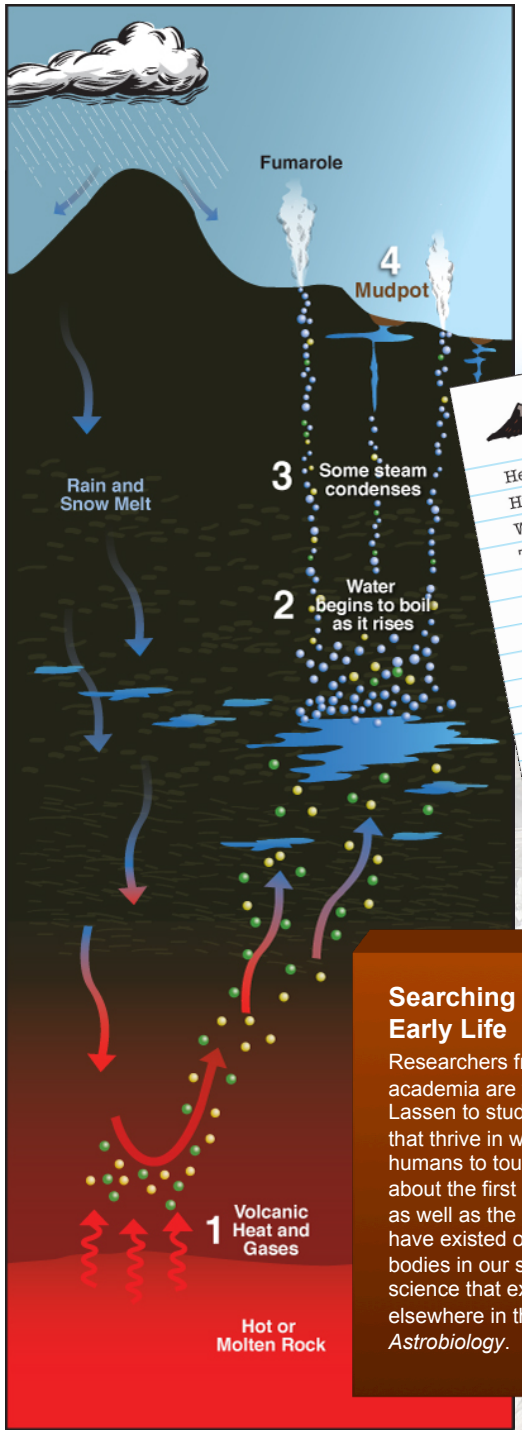
Sulphur Works



Mudpots

Recipe for

Heat (from deep within the Earth)
Hydrogen sulfide gas
Water
Thick layer of volcanic rock
Heat-loving microorganisms (thermophiles)
Minerals

1. Let volcanic heat and gases rise through Earth's crust. **2.** Boil water deep underground and add to gases. **3.** Process mixture by forcing upward through cracks in the volcanic rock. **4.** Simmer in large pot on the Earth's surface, adding water from rain and snow to make a sloppy consistency. Add microorganisms and simmer while they consume gases and help turn mixture into an acidic marinade. Cook until acid breaks down volcanic rock into clay. Garnish with minerals for added color.

Making Mud

This vat of bubbling mud contains the perfect mix of ingredients to create mudpots: heat, gases, water, volcanic rock, minerals, acid, and thermophiles – heat-loving microorganisms too small to be seen by the naked eye. These thermophiles consume some of the gases and help convert them into sulfuric acid. The acid breaks down rock to form clay, which mixes with water to create mudpots.

Searching for Clues of Early Life

Researchers from NASA and academia are working together in Lassen to study microorganisms that thrive in water too hot for humans to touch. They can tell us about the first organisms on Earth, as well as the potential for life to have existed on Mars or other bodies in our solar system. The science that explores for life elsewhere in the universe is called *Astrobiology*.

Mudpots change with the seasons. In the late summer when there is very little precipitation, mudpots are dry and dominated by steam, as seen in the image on the left. The image on the right shows the same mudpot in the spring, when the snow melts and water mixes with clay to form a bubbling cauldron of mud.

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